



U.S. Department of Energy
Office of River Protection

P.O. Box 450
Richland, Washington 99352

02-OSR-0586

Mr. R. F. Naventi, Project Manager
Bechtel National, Inc.
2435 Stevens Center
Richland, Washington 99352

Dear Mr. Naventi:

CONTRACT NO. DE-AC27-01RV14136 – INSPECTION REPORT A-03-OSR-RPPWTP-002 –
CONSTRUCTION AUTHORIZATION REQUEST READINESS INSPECTION

- References:
1. ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Notification of Construction Authorization Readiness Assessment and Associated Concerns," 02-OSR-0480, dated October 4, 2002.
 2. BNI letter from R. F. Naventi to R. J. Schepens, "Hanford Tank Waste Treatment and Immobilization Plant – Construction Authorization Readiness in Consideration of Recent Assessments and Inspections of Engineering Activities," CCN-042775, dated October 30, 2002.
 3. ORP letter from R. J. Schepens to R. F. Naventi, "Review of Bechtel National, Inc. (BNI) Response to Office of River Protection (ORP) Engineering Concerns," 02-OSR-0566, dated November 13, 2002.

This letter forwards the subject inspection report. The purpose of the inspection was to assess Bechtel National, Inc. (BNI) readiness for Low-Activity Waste (LAW)/High-Level Waste (HLW) full construction authorization. The inspection was performed over a two-week period from September 30 through October 10, 2002, and November 4 through 7, 2002. No Findings were identified during this inspection. Inspection details are documented in the enclosed inspection report.

The inspectors conducted an interim exit meeting at the end of the first week of inspection to inform BNI that a conclusion on readiness for construction authorization could not be reached until Engineering work performance issues identified in Reference 1 were addressed adequately. Subsequent to the exit meeting, BNI provided a detailed action plan (Reference 2), which addressed these issues. Following receipt of the BNI action plan, ORP performed the second week of the inspection to verify the adequacy of the compensatory measures established to mitigate the root causes of the identified engineering deficiencies.

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The second week of the inspection concluded conditionally that BNI had adequately evaluated the concerns, proposed appropriate corrective actions, and was implementing actions in support of the full construction authorization for LAW/HLW facilities. This conclusion was communicated to BNI in Reference 3.

If you have any questions, please contact me, or your staff may call R. C. Barr, WTP Safety Regulation Division, (509) 376-7851.

Sincerely,

Roy J. Schepens
Manager

OSR:PPC

Enclosure

cc w/encl:
W. R. Spezialetti, BNI

U.S. DEPARTMENT OF ENERGY
Office of River Protection
WTP Safety Regulation Division

INSPECTION: Construction Authorization Request Readiness Inspection

REPORT NO: A-03-ORP-RPPWTP-002

FACILITY: Bechtel National, Inc.

LOCATION: 3000 George Washington Way
Richland, Washington 99352

DATES: September 30 through October 10, 2002
November 4 through 7, 2002

INSPECTORS: P. Carrier, VCO, Inspection Lead
M. Evarts, Consultant
W. Ang, Consultant
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J. Adams, Inspector
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APPROVED BY: P. Carrier, Verification and Confirmation Official
WTP Safety Regulation Division

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EXECUTIVE SUMMARY
Construction Authorization Request Readiness Inspection

INTRODUCTION

This U.S. Department of Energy, Office of River Protection (ORP) inspection of Bechtel National, Inc.'s (the Contractor) readiness for full construction authorization (CA) for the Low Activity Waste (LAW) and High Level Waste (HLW) facilities covered the following specific areas:

- Adequacy of the Contractor's assessment of construction authorization readiness (Section 1.2)
- Adequacy of the Contractor's actions to address engineering concerns (Inspection Administrative Procedure A-106) (Section 1.3)
- Adequacy of the Contractor's design drawings issued for construction (Section 1.4)
- Adequacy of quality assurance (QA) and quality control (QC) programs applied to structural steel installation (Section 1.5)
- Adequacy of consumable material to support structural steel construction (Section 1.6)
- Adequacy of structural steel construction implementing procedures (Section 1.7)
- Adequacy of training and qualification of personnel engaged in structural steel installation activities (Section 1.8)
- Adequacy of structural steel welding programs, procedures, and qualifications (Section 1.9)
- Adequacy of closure of previous inspection items (Section 1.10).

SIGNIFICANT OBSERVATIONS AND CONCLUSIONS:

- The Contractor's assessment of readiness to support full CA was a good evaluation of the established lines of inquiry by each functional organization. Based upon the results of previous ORP inspections and the results of this inspection, the inspectors concluded the Contractor had sufficiently supported its request for a full CA. (Section 1.2 and 1.3)
- The Contractor had taken substantial steps to evaluate the problems associated with calculation quality, to determine the extent of condition, to determine the significance and impact of the problems on completed design, and to implement meaningful corrective actions. Additional inspection follow-up is planned in the future to verify long-term corrective actions are completed and effective in ensuring adequate quality and control of

calculations. (Section 1.3)

- The Contractor had reviewed and approved the design drawings issued for construction in accordance with Quality Assurance Manual (QAM) requirements. However, structural steel design was in the early phase and only minimally completed. (Section 1.4)
- The Contractor had not completed the preparations for structural steel erection. However, the Contractor had plans established for implementation of the QA and QC programs for structural steel erection activities in accordance with the authorization basis (AB). The Contractor planned no significant QA or QC staffing or program changes for the erection of structural steel and planned to issue a procedure for structural steel installation and on-site fabrication, including QC inspection requirements, approximately two weeks before to initiation of site structural steel erection activities. (Section 1.5)
- The Contractor had established appropriate work plans and initiated procurement of structural steel and consumable materials in accordance with the AB. The Contractor had selected vendors, initiated purchase orders, and planned for receiving, storage, and issue of structural steel and associated consumable materials in accordance with the QAM requirements. (Section 1.6)
- The Contractor had prepared engineering specifications that met the requirements of the AB. Approved installation procedures for ITS steel had not yet been written. (Section 1.7)
- The Contractor had appropriate plans for the training and qualification of personnel for structural steel erection activities in accordance with the AB. (Section 1.8)
- The Contractor had not released for construction their detailed structural steel design; therefore, the structural steel welding program could not be verified. (Section 1.9)

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CONSTRUCTION AUTHORIZATION REQUEST READINESS INSPECTION

1.0 REPORT DETAILS

1.1 Introduction

This U.S. Department of Energy, Office of River Protection (ORP) inspection assessed the Contractor's readiness for full construction authorization (CA) for the Low Activity Waste (LAW) and High Level Waste (HLW) facilities. As part of this readiness assessment, the Contractor's readiness to perform important-to-safety (ITS) structural steel construction activities was examined considering the adequacy of structural steel design drawings, Quality Assurance (QA) and Quality Control (QC) programs, consumable material to support construction, construction implementing procedures, training and qualification of personnel, and structural steel welding preparations.

Details and conclusions regarding this inspection are described below.

1.2 Adequacy of the Contractor's Assessment of Construction Authorization Readiness (ITP) I-135

1.2.1 Inspection Scope

The inspectors assessed the adequacy of the Contractor's assessment of readiness for full CA, from the perspective of readiness to perform ITS construction activities related to the construction of the LAW and HLW waste treatment and immobilization plant (WTP) facilities, by examining the readiness of the Engineering, Quality Assurance, and Construction organizations. The inspectors reviewed the Contractor's self-assessment reports for those organizations and the analysis of readiness performed by the organizations, and interviewed Contractor management and staff.

1.2.2 Observations and Assessments

ORP performed several activities over the past two years providing a basis for confidence in the ability of the Contractor to conduct ITS work activities.

ORP implemented a program for inspection of the Contractor's conformance to the authorization basis (AB) at the start of the Contract¹, in December 2000, and continuing through the present. About 25 inspections have been completed to date. ORP documented the results of each inspection in an inspection report issued to the Contractor, with the reports available on the ORP website for the public to review. For example, ORP examined the Contractor's activities in support of soils (ITS building foundation) excavation, backfill, and compaction; installation of

¹ Contract No. DE-AC27-01RV14136 between the U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

forms, reinforcing steel, and embedments; ITS concrete production; and concrete placement. ORP also examined the Contractor's programs, procedures, and implementation of a broad range of design and construction activities. Examples included standards implementation, standard selection, document control, configuration control, design process implementation, quality assurance performance, design drawing completion and implementation, management assessments, personnel training, field engineering performance, quality control performance, records management, industrial health and safety, and construction management. Each inspection report provided a conclusion regarding the degree of conformance to the specified requirements and the basis for the conclusion. With the exception of engineering work performance, discussed later, results from the implementation of the inspection program have established a level of confidence the Contractor was substantially in conformance with the AB requirements in the areas evaluated during the execution of the inspection program.

In addition, ORP had examined the Contractor's readiness to proceed with certain work activities during several previous inspections. During the first readiness review, ORP examined the Contractor's readiness to proceed with activities effecting firewater piping installation and soil excavation for ITS building foundations, and documented the results in ORP Inspection Report IR-01-004, dated October 23, 2001.² The first readiness review extensively examined the programs and implementation in the areas of quality assurance, quality control, records generation and storage, training and qualification of craft and inspection personnel, occurrence reporting, and emergency preparedness. These extensive programmatic inspections formed the foundation upon which subsequent readiness reviews were based. Accordingly, subsequent readiness assessments focused more on the adequacy of readiness preparations for the specific work activity. ORP examined the Contractor's readiness to proceed with soil backfill and compaction activities for ITS building foundations and documented the results in ORP Inspection Report IR-01-008, dated December 14, 2001.³ The Contractor's readiness to proceed with the installation of forms, rebar and embedments for ITS buildings was examined by ORP and documented in ORP Inspection Report IR-02-004, dated May 3, 2002.⁴ Further, the Contractor's readiness to proceed with ITS structural concrete installation was examined by ORP and documented in ORP Inspection Report IR-02-008, dated August 26, 2002.⁵ Additional inspections related to verification of readiness to proceed with ITS reinforcing steel and structural concrete installation were conducted by ORP and documented in ORP Inspection Reports IR-02-005, dated June 11, 2002,⁶ and IR-02-011, dated September 13, 2002.⁷ Although the Contractor had not completed all of the preparations for the readiness activity being assessed, the inspectors concluded the Contractor had developed a clear understanding of the work

² ORP letter from R. C. Barr to R. F. Naventi, BNI, "Phase A, Limited Construction Readiness Inspection Report, IR-01-004," 02-ORP-0391, dated October 23, 2001.

³ ORP letter from R. C. Barr to R. F. Naventi, BNI, "Phase B, Limited Construction Readiness Inspection Report, IR-01-008," 01-ORP-0498, dated December 14, 2001.

⁴ ORP letter from R. C. Barr to R. F. Naventi, BNI, "Inspection Report IR-02-004 – On-Location Inspection Report for the Period February 25 through April 11, 2002, 02-ORP-0174, dated May 3, 2002.

⁵ ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Inspection Report IR-02-008 – On-Location Inspection Report for the Period May 24, Through July 16, 2002, Including an Assessment of Contractor Readiness to Perform Partial Construction Authorization Activities," 02-ORP-0352, dated August 26, 2002.

⁶ ORP letter from R. C. Barr to R. F. Naventi, BNI, "Inspection Report IR-02-005 – On-Location Inspection Report for the Period April 12 Through May 23, 2002," 02-ORP-0231, dated June 11, 2002.

⁷ ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Inspection Report IR-02-011 – On-Location Inspection Report for the Period July 17 Through August 23, 2002," 02-ORP-0426, dated September 13, 2002.

activities necessary to complete their preparations and had established the necessary management systems and programs to ensure the accomplishment of the ITS activity in accordance with requirements (QA Program, Safety Requirements Document, Integrated Safety Management Program) prior to beginning the assessment topic activity.

On August 28, 2002,⁸ the Contractor notified ORP of its declaration of readiness to proceed with CA activities. The assessment included a review of a broad range of areas associated with the planned CA activities. The Contractor had identified a list of open items, specifically four Corrective Action Reports (CAR), and concluded these CARs would not impact their declaration of readiness for CA. The inspectors examined the basis for the Contractor's conclusion, regarding the four CARs, to determine whether the conclusion was adequately supported. The results of these examinations are documented below.

The inspectors examined the readiness assessments performed by each of the Contractor's functional organizations in support of the WTP declaration of readiness to support full CA, as provided by a Contractor memorandum to file, dated September 5, 2002. In support of the declaration of readiness for CA, each Contractor functional area manager assessed and reported on the readiness of their organization. The functional organization assessments concluded adequate resources and programmatic processes were in place to support full CA, and there were no identified open issues needing resolution before a conclusion of readiness was established.

The inspectors examined whether the Contractor's declaration of readiness was clearly supported by the functional organization assessments (provided as attachments to a September 5, 2002 memorandum to file) of certain critical organizations asserting readiness. The inspectors selected those functional organizations with the highest level of involvement in implementing ITS activities (QA, Engineering, and Construction) for further examination of their basis for concluding CA readiness in order to determine whether such a conclusion was clearly supported.

The Construction organization documented their basis and declaration of readiness by memorandum to file, dated August 26, 2002, and provided the methodology used to evaluate readiness. The inspectors found the methodology was appropriate to determining readiness for full CA, and the results demonstrated a supported basis for concluding Construction's readiness.

The QA organization documented their basis and declaration of readiness by memorandum to file, dated August 21, 2002, and included their lines of inquiry used in arriving at the conclusion. The inspectors found the lines of inquiry were appropriate to determining the readiness for full CA. The inspectors noted the QA organization had identified four CARs (discussed above) with the potential to affect the project's readiness for full construction, and identified two of the CARs, still not resolved and closed, as significant (CARs 24590-WTP-QA-02-095, issued May 13, 2002, and 24590-WTP-QA-02-119 [CAR 119], issued June 6, 2002). Both of the CARs documented problems with the performance of engineering calculations. The QA organization documented the CARs were being monitored to verify achievement of successful resolution and concluded the readiness for full CA was supported because necessary compensatory actions were in place. However, the inspectors did not reach the same conclusion because the QA

⁸ BNI letter from R. F. Naventi to R. J. Schepens, ORP, "Hanford Tank Waste Treatment and Immobilization Plant Critical Decision 3C Declaration of Readiness," CCN-039965, dated August 28, 2002.

organization did not identify the actions being taken to monitor the performance of engineering work or the compensatory measures put in place to assure the proper performance of engineering work.

The Engineering organization documented their basis and declaration of readiness by memorandum to file, dated August 22, 2002, and provided the methodology used to evaluate readiness. The inspectors found the methodology was appropriate to determining readiness for full CA. Engineering noted calculation deficiencies (CAR 119, discussed above) had been identified and concluded the issue would not affect their declaration for readiness for full CA. The Engineering internal review indicated the technical conclusions of the calculations were not affected, but procedure clarification and additional supervisory oversight were required to assure calculation documentation adequacy.

The inspectors performed an evaluation of the open CARs to assess whether compensatory measures were clearly documented and whether the engineering performance issues affected the technical conclusions.

The inspectors examined the list of open CARs to assess the degree and significance of engineering work performance problems. The inspectors reviewed the complete list, as of October 4, 2002, of open CARs (110 in all) and selected 34 for in-depth examination. The inspectors found the listing of open CARs contained the expected distribution of problems related to the organizations doing the most work. However, engineering performance of design activities not in accordance with established requirements was a persistent trend (21 of the selected CARs documented problems heavily oriented to the inadequate performance of checkers, reviewers, and approvers of engineering work products, primarily calculations). The inspectors concluded the problems with engineering work performance were not primarily the result of procedure inadequacies, contrary to the conclusions stated in the above Engineering memorandum to file. Instead, the inspectors concluded the CARs demonstrated engineering work performance was not being accomplished in a high quality manner, primarily because of personnel performance inconsistencies in checking, reviewing, and approving calculations. The inspectors further concluded the CARs did not provide sufficient information to bound the problems.

Recent ORP inspections (in the areas of configuration management, standards selection, standards implementation, and design process implementation) also identified problems with the performance of engineering work, confirming the continuing nature of engineering work performance problems, described above.

The Contractor had performed a root cause analysis of the engineering problems utilizing an experienced root cause analyst and overseen by an individual qualified in the techniques and performance of root cause analysis. The ORP notified the Contractor of concerns regarding the performance of engineering work by letter dated October 4, 2002,⁹ and stated the Contractor must demonstrate their plans and actions comprehensively address the design process issues in order for ORP to conclude they were ready for construction. The Contractor met with ORP on

⁹ ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Notification of Construction Authorization Readiness Assessment and Associated Concerns," 02-ORP-0480, dated October 4, 2002.

October 7, 2002, and presented their analysis of the engineering performance problems along with the identified compensatory measures and corrective actions to resolve the problems. The Contractor provided ORP with a letter¹⁰ identifying their evaluation of the engineering performance problems, actions to investigate and mitigate the root causes for the deficiencies identified by the October 4, 2002, letter,¹¹ the actions to resolve the issues and prevent recurrence, and their justification of readiness for CA.

ORP reviewed the Contractor's evaluations, provided by the October 30, 2002, letter,¹² and concluded the evaluations and the proposed corrective actions were adequate. The ORP conducted inspections (documented in Section 1.3) during the period of November 4-7, 2002, to assess the actions taken to address the concerns identified by the October 4, 2002, ORP letter,¹³ and concluded the Contractor's implementation of the proposed corrective actions were adequate to support the full CA for the HLW and LAW facilities. The ORP provided these conclusions to the Contractor by letter dated November 13, 2002,¹⁴ with the condition that the corrective actions identified by the Contractor's October 30, 2002, letter¹⁵, be completed by the dates provided in the letter.

ORP provided the Safety Evaluation Report (SER) of the Contractor's LAW, HLW, Pretreatment (PT), and Balance of Facilities (BOF) CA request, by letter dated November 13, 2002¹⁶. The SER, provided by ORP letter 02-ORP-0518¹⁷, supported issuance of authorization (with identified conditions) of: 1) full construction of the LAW facility; 2) full construction of the HLW facility; 3) construction of the PT facility pits, tunnels and basemat; and 4) construction of selected portions of the BOF structures. The ORP provided the Contractor with authorization to proceed with these construction activities and the conditions of acceptance, by letter dated November 13, 2002¹⁸.

The inspectors examined the Contractor's readiness to perform future construction work and found the Contractor had not completed all of the specifications and procedures necessary to accomplish all of the construction work, such as structural steel installation, piping system installation, and electrical system installation. However, these activities were not scheduled to begin until some time in the future, and the Contractor stated these specifications and procedures would be available before the application activities began. With regard to structural steel installation (the next major ITS construction activity) the Contractor was in the early phases of design, and had not completed the construction work procedure for installing steel. In addition,

¹⁰ BNI letter from R. F. Naventi to R. J. Schepens, ORP, "Hanford Tank Waste Treatment and Immobilization Plant – Construction Authorization Readiness in Consideration of Recent Assessments and Inspections of Engineering Activities," CCN-042775, dated October 30, 2002.

¹¹ Ibid 9.

¹² Ibid 10.

¹³ Ibid 9.

¹⁴ ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Review of Bechtel National, Inc. (BNI) Response to Office of River Protection (ORP) Engineering Concerns," 02-ORP-0566, dated November 13, 2002.

¹⁵ Ibid 10.

¹⁶ ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Safety Evaluation Report (SER) of the Low Activity Waste (LAW), High Level Waste (HLW), Pretreatment (PT), and Balance of Facilities (BOF) Construction Authorization Request (CAR)," 02-ORP-0518, dated November 13, 2002.

¹⁷ Ibid 16.

¹⁸ ORP letter from R. J. Schepens to R. F. Naventi, BNI, "U.S. Department of Energy (DOE) Notice to Proceed with Construction Activities," 02-ORP-0517, dated November 13, 2002.

the Contractor had not completed training of the craft and QC personnel in structural steel installation, including welding. The Contractor was in the process of finalizing the purchase orders for structural steel and had placed two suppliers on the Qualified Suppliers List.

The inspectors concluded the Contractor's assessment of readiness to support full CA was a good evaluation using established lines of inquiry by each functional organization. Based upon the results of previous ORP inspections of Contractor performance, previous ORP examinations of Contractor readiness, and the Contractor's corrective actions to improve engineering work performance, the inspectors concluded the Contractor had provided assurance and confidence that the necessary management systems, programs, and procedures would be available and in place prior to implementing future construction activities.

1.2.3 Conclusions

The inspectors concluded the Contractor's assessment of readiness to support full CA was a good evaluation using established lines of inquiry by each functional organization. Based upon the results of previous inspections, the results of this inspection, previous assessments of Contractor readiness to perform ITS activities, and the results of ORP inspections performed to assess the Contractor's corrective actions to resolve engineering work performance issues (documented in Section 1.3), the inspectors concluded the Contractor had sufficiently supported their request for full CA.

1.3 Adequacy of Contractor's Actions to Address Engineering Concerns (Inspection Administrative Procedure (IAP) A-106)

1.3.1 Inspection Scope

On October 4, 2002, the ORP notified the Contractor via a letter¹⁹ of engineering concerns identified during four recently completed inspections of the Contractor's engineering programs associated with the design and construction of the WTP. These inspections identified 12 Findings of non-compliance with AB requirements. Many of these Findings identified inadequate implementation of design controls. Issues associated with the identification and control of design inputs and use of unapproved standards were of particular concern because they called into question the adequacy of the design currently being installed. In addition, technical and administrative errors in engineering calculations were identified and attributed to design process weaknesses. ORP acknowledged the Contractor was in the process of performing comprehensive assessments of engineering practices and performance, and had initiated an engineering stand down to assess these performance issues. Prior to full construction authorization for the LAW and HLW facilities, the Contractor was requested to show, at a minimum, their plans and actions addressed comprehensively these design process implementation concerns.

¹⁹Ibid 9.

On October 30, 2002, the Contractor provided ORP with a letter²⁰ describing their plans and actions to address the engineering concerns discussed above. The inspection team reviewed this letter and performed a detailed inspection of the immediate actions taken to address these concerns. In addition, the inspectors reviewed the long-term corrective actions planned to comprehensively address engineering performance. Following completion of this portion of the inspection, ORP issued a letter²¹ dated November 13, 2002, conditionally concluding the Contractor had adequately evaluated the concerns, proposed appropriate corrective actions, and was implementing them in support of the full construction authorization for the HLW and LAW facilities. The following condition was documented in the letter:

“BNI will implement the corrective actions specified in Attachment 2, 'Assessment of the Effect of Design Process Implementation Issues on Construction Authorization Readiness,' to the BNI letter dated October 30, 2002. These corrective actions must be completed by the dates provided in the letter.”

To perform this assessment, the inspectors reviewed the Contractor’s October 30, 2002, response²², referenced documents and corrective actions reports, and other related corrective action records. In addition, the inspectors interviewed engineering, environmental health and safety, and quality assurance management and staff, to determine the extent and adequacy of evaluations and actions taken to address the engineering concerns discussed in the ORP October 4, 2002, letter.²³

1.3.2 Observations and Assessments

1.3.2.a Recovery Actions to Address Calculation Concerns

The ORP, the Defense Nuclear Facility Safety Board, and the Contractor had identified a number of concerns regarding the adequacy of calculations. Concerns included the following:

- The Contractor had not established an effective process or project procedures for tracking and closing unverified assumptions in engineering design calculations, as required by the QAM.
- Design calculations did not consistently identify design inputs (specifically the source of design inputs and the basis of assumptions in the design calculations were not documented in some calculations).
- Unverified assumptions were not consistently identified.
- Many editorial errors were identified.

²⁰ Ibid 10.

²¹ Ibid 14.

²² Ibid 10.

²³ Ibid 9.

- Many non-conservative math errors were identified.
- Some potentially significant calculation errors were identified that could impact final design.

Below are the documents the inspectors reviewed and a brief summary of their content:

- “Management Assessment of Safety Analysis Calculation,” 24590-WTP-MA-ESH-02-009, performed May 7-31, 2002. The Contractor assembled a highly qualified independent review team to analyze 100% of the HLW and LAW, and 6 of 16 of the Pretreatment (PT) facility safety analysis calculations following concerns raised by the Defense Nuclear Facility Safety Board and the ORP. The team identified over 1000 errors in 27 calculations. About half of the errors concerned failure to adequately identify assumptions and about half concerned editorial errors. However, there were also 179 non-conservative math errors and 11 potentially significant errors (classified as Category I issues) identified during their review. The significant errors were associated with 3 HLW Design Basis Event (DBE) calculations. The inspectors considered the independent analysis to be of high quality and resulted in a number of good recommendations. The Contractor converted all of the calculations to “committed” status (this results in the Contractor having to revise the calculations and re-perform checking under new procedures as discussed below), performed a detail review of the calculations with the 11 potentially significant errors (see discussion below), and revised procedures and trained staff on the changes to ensure these problems were corrected and future calculations are of higher quality.
- “Review of Calculations Identified as Having Category I Issues in ‘Management Assessment of Safety Analysis Calculations,’” DE-AC27-01RV14136, completed on May 31, 2002. Following the Management Assessment described above, the Contractor tasked the Accident Analysis Lead (a non-participant in the original calculation development cycle) with reviewing the three calculations identified as having significant errors (i.e., errors with the potential to affect conclusions or specified controls). This review concluded the three calculations with significant errors did not result in changes to the selected control strategies. The inspectors determined the report contained adequate documentation of the errors and sufficient detailed justifications for the inspectors to agree with conclusions reached.
- “WTP Calculation Review,” Interoffice Memorandum dated July 10, 2002, CNN 036539. This was a three-person “Chief Engineers” review of calculations to determine the extent of procedure compliance, completeness of calculation content and accuracy, and use of appropriate computer program verification and validation documentation. The team was also tasked with providing recommendations for procedure changes to improve work product and quality. A total of 34 calculations were reviewed. The team also identified numerous errors in calculations and focused its efforts on determining the causes of the errors and identifying corrective actions to address the errors. Numerous procedure changes were recommended. The inspectors reviewed the “Engineering Calculations” procedure, 24590-WTP-3DP-G04B-00037, Revisions 0, 1, and 2, dated March 25, 2002, October 28, 2002, and November 4, 2002, respectively. The inspectors verified the

procedure changes recommended by the team were incorporated into the latest revision of the procedure. The inspectors concluded the changes to the procedures should help improve the quality of future calculations.

- Summary of the results of a review of 71 calculation performed by multi-disciplinary engineering staff. This review sampled about 14% of the existing calculations and confirmed the extent of unverified assumptions not being identified, as well as other calculation errors. This study also confirmed the errors did not require changes to issued design drawings. The inspectors reviewed the Contractors conclusions and determined adequate justifications for the conclusions existed to support their no-impact position.
- Corrective Action Report (CAR) 24590-WTP-CAR-QA-02-119 (CAR 119), dated June 6, 2002. This CAR (classified as significant) documented a significant portion of the calculation errors. Significant CARs required the performance of a root cause analysis (RCA). Although the CAR identified a major portion of the calculation errors and required an RCA, Contractor QA documented on August 6, 2002, that immediate stopgap actions to address the CAR were not stated or implemented in a timely manner. Further, the CAR did not provide a completion date for the performance of an RCA. This CAR remained opened at the time of this inspection.
- “Root Cause Analysis for Deficiencies Identified in Calculations”, 24590-WTP-RPT-G-02-002, Revision 0, dated October 28, 2002. This RCA was conducted to address the deficiencies identified in CAR 119, which documented deficiencies identified in QA surveillances and the above listed management assessments. The RCA was detailed and included an in-depth review of the many deficiencies associated with calculations. Four causes with associated corrective action recommendations were identified and included:
 - “Supervisors and managers placed much emphasis on meeting schedule and little emphasis on calculation content and procedural compliance.”

The RCA team recommended management establish metrics for documenting the quality and procedural compliance of calculations and hold individuals accountable for improving performance. In addition, they recommended management reward individuals for the initial quality of their calculation, on both technical and procedural compliance.

The Contractor informed the inspectors they had conducted meetings with staff to emphasize the need to follow procedures, perform high quality work, and ensure checking verifies both technical accuracy and procedural compliance. The Contractor had established calculation metrics (checklists) for checkers to use during checking. These metrics were to be reviewed by Process Assurance (a quality engineering group assigned to the engineering department) and used to identify common weaknesses, areas for training, and other corrective actions. However, the metrics and their uses were not contained in project procedures. The Contractor stated they would consider developing and implementing procedures to control this effort. Follow-up to verify procedures were adequately

developed and implemented to control the use of calculation metrics will be tracked as an Assessment Follow-up Item (AFI) associated with Process Assurance procedural weaknesses (A-03-ORP-RPPWTP-002-A01).

- “Combined level of supervision, training, and procedural content was insufficient to consistently produce quality calculations.”

The RCA team recommended revising the procedures to provide clear direction on responsibilities, roles, and definitions to assist the users in producing consistent and compliant calculations, and providing interactive training to these revised procedures. The inspectors verified the procedures were revised, as discussed above, and reviewed training records indicating staff was trained on the procedure revisions.

- “There was inadequate analysis of the needs for software documentation in calculations.”

The RCA team recommended Process Assurance discuss with QA representatives the requirements for documentation of software used in calculations and to incorporate the results of these discussions into the procedure.

The inspectors were informed procedural requirements were developed and the *Engineering Calculations* procedure, 24590-WTP-3DP-G04B-00037, was revised to reflect these requirements. The inspectors verified the procedure was revised to reflect these requirements.

- “Management underestimated the difficulty of tracking the uses of calculation results in the Project’s electronic documentation environment.”

The RCA team recommended management develops and implements a single, coherent, project-wide method to ensure owners of affected documents are notified in a timely manner when results of a calculation have changed.

The Contractor had not yet completed actions to develop a method for tracking users of calculations and to notify users when changes occur. Follow-up on this action will be tracked as AFI A-03-ORP-RPPWTP-002-A02.

The inspectors concluded the RCA was a well-implemented and documented effort. Management had taken, or was planning to take, appropriate actions to address the recommendations in a timely manner commensurate with the planned construction authorization request. Items not completed as described in the two AFIs discussed above, were long-term actions and would be followed up on at a later date.

- “Process Assurance Review (Review of Calculations for September 2002),” PAR 02-017, dated October 15, 2002. This effort included reviewing 16% of the calculations performed during the month of September 2002 (10 of 59 calculations). Of the 10 calculations reviewed, 9 had at least one procedural noncompliance. A total of 14

procedural noncompliances were identified.

The PAR was a good effort at assessing the ongoing corrective actions and providing independent feedback to Discipline Managers on the quality of calculations. The number of errors identified was substantially less than had been identified during earlier management assessments, but indicated additional work was needed. The Process Assurance Group was not using approved procedures to conduct this review, and did not have a formal method of tracking identified issues to closure. The Process Assurance Team Lead indicated procedures would be used for future reviews, probably through the use of quality assurance surveillance procedures. Follow-up on this concern will be tracked as an additional example of the AFI associated with Process Assurance procedural weaknesses (A-03-ORP-RPPWTP-002-A01) described above.

In addition to reviewing the above documents, the inspectors reviewed the October 30, 2002 response letter,²⁴ described in Section 1.3.1 above, concerning the Contractor's plans and actions to address calculation issues. Attachment 2 of the letter, "Assessment of the Effect of Design Process Implementation Issues on Construction Authorization Readiness," provided a general discussion of the management assessments and other actions discussed above and described a number of specific corrective actions. The following provides a brief description of the significant, specific calculation-related corrective actions and the inspectors' assessment of the actions taken to date:

- As a mitigating corrective action, the Contractor instituted a second checker process with defined criteria to assess in-progress calculations against the weaknesses noted and to generate quality metrics. The Contractor also reverted all confirmed calculations to committed status to initiate a re-review of calculations previously confirmed.

As discussed above, the inspectors reviewed the *Engineering Calculations* procedure, 24590-WTP-3DP-G04B-00037, and the calculation checklist used to guide the checkers and establish performance metrics. The procedure provided clear requirements for developing and checking calculations, and the checklist provided a step-by-step list of the procedure requirements. The inspectors also reviewed the training material used to train the checkers and verified (through training record reviews) applicable staff were trained to the procedure requirements and management expectations regarding quality and procedural compliance. The inspectors also reviewed the ALTRIS database that tracks the status of calculations, and determined the calculations were reverted to committed status. These actions, in conjunction with the actions described below concerning extent of condition, adequately addressed the immediate concern regarding adequacy of calculations and calculation control.

- To address the potential extent of condition of the calculation issue, the Contractor reviewed 14% of the total population of calculations and confirmed the quality issues with calculations were widespread. This review also determined calculation errors did not affect the final design of the plant.

²⁴ Ibid 10.

As discussed above, the inspectors reviewed the Contractor's efforts to determine the extent of condition and agreed with their conclusion the problems were widespread. The Contractor's conclusions regarding their high level of confidence the errors would not affect final design was supported by detailed reviews of known errors and adequate documented justifications for no impacts. Also, as stated above, the Contractor chose to revert confirmed calculations to committed status to ensure the confirmed calculations were re-reviewed and checked using the new procedure and checklist. The Contractor also committed to schedule the additional reviews. At the time of this inspection, the Contractor had not yet established a schedule for this re-review effort. Follow-up on this effort will be tracked as an AFI (A-03-ORP-RPPWTP-002-A03).

Based on the actions described above, the inspectors determined the Contractor had taken substantial steps to evaluate the problems associated with calculation quality, to determine the extent of condition, to determine the significance and impact the problems on completed design, and to implement meaningful corrective actions. Additional inspection follow-up is planned in the future to verify long-term corrective actions are completed and effective in ensuring adequate quality and control of calculations.

1.3.2.b Recovery Actions to Address Design Input Memoranda

Design Input Memoranda (DIM) are documents which accompany and are approved with primary design documents (such as process flow diagrams, general arrangement drawings, and other design media) to identify design inputs used by the originator in developing design documents. Design inputs typically include drawings, calculations, and design criteria from a variety of top level source documents. Several instances were identified where incorrect or incomplete references existed on DIMs. There were also instances where preliminary or informal inputs were noted for drawings issued for construction. The Contractor believed the cause for the above errors was non-prescriptive guidance in the implementing procedure that left too much discretion to the individual engineers preparing the DIMs.

DIMs support several objectives including: 1) facilitating review of inputs when reviewing the related design documents; 2) identifying document linkages for capture in electronic databases which support configuration management; and 3) recording design inputs for the benefit of future designers implementing changes associated with the related design drawings. Since a substantial number of design documents were transitioning from preliminary status to "issued for construction," the Contractor initiated a programmatic review of DIMs.

In the October 30, 2002, letter,²⁵ the Contractor committed to perform a 10% sample of DIMs for drawings that had been issued for construction. The results of the sample would be used to determine the extent of condition for the DIM process. The Contractor committed to complete the 10% sample by October 30, 2002. The inspectors interviewed the manager responsible for the programmatic review. He provided objective evidence the 10% sample was performed by the committed date. The sample of DIMs reviewed confirmed the incompleteness and inaccuracy issues were not isolated events. However, the review also confirmed errors in completing DIMs did not result in errors in the features or attributes of the associated design.

²⁵ Ibid 10.

The manager also told the inspectors a multi-disciplinary team of engineers had been formed to develop minimum content expectations for DIMs including discipline-specific considerations.

At the time of the inspection, the Contractor had completed the 10% sample and was in the process of developing the guidance described above. The Contractor's letter also committed to document the minimum content expectations and the discipline specific expectations into engineering design guides. This guidance would be developed by November 22, 2002. The inspectors cautioned the Contractor against the use of design guides for providing specific direction for quality affecting activities. Since the DIM process is used for identifying document linkages for capture in electronic databases supporting configuration management, a better location for the above guidance would be project procedures. Additionally, the Contractor committed to complete DIM process classroom training by November 27, 2002.

Based on the above, the inspectors determined the Contractor had taken substantial steps to evaluate the problems associated with the DIM process, to determine the extent of condition, to determine the significance and impact the problems might have on completed design, and to implement meaningful corrective actions.

1.3.2.c Recovery Actions to Address Supplier Deviation Disposition Requests

Supplier Deviation Disposition Requests (SDDRs) were used to document supplier requests and project approval to deviate from technical and administrative requirements specified in awarded procurement packages. Approved deviations may have implications for issued design documents, specification, and/or vendor-issued documents. Instances were found where SDDRs dispositions were not properly coordinated with the discipline responsible for the design of the material being procured. This resulted in inconsistent interfacing documents (drawings and calculations). In June 2002, the Contractor initiated a 100% review of SDDRs issued on the project (52 instances as of that date). The review identified the following problems:

- Design Documents requiring revisions were not identified
- Where required changes to design documents were identified, action had not been taken to incorporate changes
- Quality requirements had been changed by Engineering without QA concurrence
- Justification statements for dispositions were incomplete or missing.

The Contractor believed the above problems were caused by insufficient procedure guidance and an unclear SDDR form.

In the October 30, 2002, letter²⁶, the Contractor committed to expand the 100% review described above to SDDRs issued as of the date of the letter. This additional review would be used to confirm adequacy of identification of affected design documents, incorporation of changes to affected BNI or suppliers documents, and appropriateness of decisions not to incorporate

²⁶ Ibid 10.

changes into affected design documents. The Contractor also committed to revise the SDDR form, associated Engineering Procedure, and Project Document Control (PDC) desk instruction to comply with documentation, approval, and records management requirements. Changes to the SDDR form had been completed as of the date of the inspection. Changes to the procedure and desk instruction would be completed by November 25, 2002. Lastly, the Contractor committed to identify affected documents and correct affected document links in ALTRIS by November 25, 2002.

The inspectors interviewed the Configuration Management Manager to determine the status of the above committed actions. During the interview the inspectors were provided a revised copy of SDDR form 24590-ENG-F00001, Rev. 2, which provided additional guidance to the preparer. The inspectors were also provided with a matrix which documented the review of SDDRs (90 SDDRs) which had not been completed as of the date of the inspection. Approximately 70% of the SDDRs had been reviewed at the time of the inspection. The review indicated some impact to BNI record documents due to lack of integration of change control documents and procedures. However, the documentation problems had no impact on construction or procurement activities.

Based on the above, the inspectors determined the Contractor had taken substantial steps to evaluate the problems associated with the SDDR process, to determine the extent of condition, to determine the significance and impact the problems might have on completed design, and to implement meaningful corrective actions.

1.3.2.d Recovery Actions to Address Configuration Control/Change Documents

Design change documents such as the field change request (FCR) are used to revise engineering drawings as specified in approved design control procedures. These FCRs, once approved, are transmitted to PDC for configuration control linkage to the parent and daughter documents they affect. In the Configuration Management Inspection Report IR-02-007²⁷, two Findings were identified dealing with use of FCRs and the subsequent PDC linkage process. The Contractor also identified instances of this in CAR 24590-WTP-CAR-QA-02-137, dated July 10, 2002. The Contractor initiated actions to recover and resolve this situation and outlined a series of commitments in their October 30, 2002.²⁸ Attachment 2 of this letter specifically committed to short-term corrective actions of (1) Complete a 100% review of electrical discipline FCRs (noting no further discrepancies being found), (2) Complete a 100% review of all construction site craft and technical libraries for correct document version content, and (3) Completed an extent of condition review by performing a 25% review FCRs against civil, structural, and architectural (CSA) discipline drawings by the end of November.

The inspectors interviewed the Deputy Engineering Manager who stated the 100% electrical review had been completed but was unable to provide any documentation of this review at the time. The PDC had performed 100% review of the construction site files as had QC and QA. Although a number of drawing errors were identified and corrected, the Contractor planned to continue to regularly assess the construction drawing files, as described below, for the next six

²⁷ ORP letter from R. C. Barr to R. F. Naventi, BNI, "Inspection Report IR-02-007 – Configuration Management Inspection," 02-ORP-0270, dated July 8, 2002.

²⁸ Ibid 10.

months to ensure corrective actions were effective. The 25% CSA review was still in progress with no results reported.

The Contractor also identified five corrective actions to prevent recurrence including:

1. Revise the FCR form, Engineering procedures, and PDC desk instruction to comply with documentation, approval, and records management requirements by the end of November.
2. Identify affected documents and correct affected document links in ALTRIS, the project's CM database.
3. Increase the frequency of surveillances and Management Assessment by Area Disciplines
4. Implement weekly review of all construction site craft and technical libraries for correct document version content.
5. Institute performance metrics for feedback and continuous improvement.

From interviews with the Process Engineering Manager, the PDC Manager, and the Process Assurance Engineer, the inspectors determined progress was being made in all these areas. Although the inspectors concluded progress had been made to address the configuration control/change control problems, the extent of condition review did not adequately address all engineering disciplines subject to potential errors in FCR postings. Based on the initial review performed by the Contractor, the inspectors determined potential problems in the remaining engineering disciplines should not impact current design documents, however, follow-up on this extent of condition will be tracked as part of the ORP review and closure of Finding IR-02-007-03, documented in inspection report IR-02-007.²⁹

1.3.2.e Recovery Actions to Address AB Conformance

In preparation for an upcoming ORP AB inspection, the Contractor initiated a Management Assessment of representative design documents (piping and instrumentation drawings and general arrangement drawings) to check conformance to the design as portrayed in the Preliminary Safety Analysis Reports (PSARs) submitted in late 2001 to support authorization of construction of the LAW basemats and walls-to-grade for various facilities associated with the WTP. Inconsistencies were identified between descriptive and quantitative information in the PSARs, including design parameters used as inputs to safety analyses and evolved design details on current drawings.

The Contractor reported that for all cases identified, the design details incorporated appropriate safety requirements and features, but the appropriate change request to the AB documents had not been submitted to ORP for approval. A full description of the problem and immediate compensatory measures was provided to ORP in a letter dated October 18, 2002.³⁰

²⁹ Ibid 27.

³⁰ BNI letter from R. F. Naventi to R. J. Schepens, ORP, "Authorization Basis Consistency," CCN 043667, dated October 18, 2002

In the October 30, 2002 letter,³¹ the Contractor made the following additional commitments to ORP to resolve the AB maintenance issue:

- Perform 100% review of primary design drawings issued to date as Revision 0 or higher by cognizant Environmental, Safety, and Health (ES&H) analysts and design engineers. Reviews completed by November 22, 2002.
- Modify procedures to mandate the use of Screening Check List by November 11, 2002.
- Changes to drawing, design criteria, and change control procedures to address descriptive text by November 22, 2002.
- Provide additional training to engineering management, supervision, and design engineers by December 2, 2002, on the subjects of AB content, AB conformance, and AB maintenance.

The Contractor informed the inspectors the Manager of Integrated Safety Management System (ISMS) Implementation was charged with implementing 100% review of primary design drawings issued on the WTP project. The inspectors interviewed the Manager of ISMS Implementation to obtain a status of the above commitments. The inspectors were provided with a matrix of the primary drawings, which had been reviewed to date by the cognizant engineers. As of the date of the inspection, approximately 40% of the drawings had been reviewed. The Contractor stated reviews to date continued to find inconsistencies as described in the October 18, 2002, letter.³² However, no instances were found where design needed to be modified to achieve compliance with the safety bases described in the Partial Construction Authorization Request (PCAR) and PSARs.

The inspectors were provided with a copy of a memorandum from the Engineering Manager to all Discipline Managers, dated October 16, 2002. The memorandum provided a summary of the results of the AB Management Assessment and provided specific direction mandating the use of the Safety Screen Checklist. The inspectors also were provided with a copy a new procedure entitled, *Safety Screening and Safety Evaluation*, (24590-WTP-GPP-SREG-009_0), dated November 4, 2002. This new procedure addressed the use of the Safety Screen Checklist. The inspectors found the new procedure provided a detailed checklist to be used by engineers to ensure design changes are properly reviewed against requirements of the AB. The inspectors determined the new procedure met the commitment made above.

Based on the above, the inspectors determined the Contractor had taken substantial steps to evaluate the problems associated with the AB maintenance process, to determine the extent of condition, to determine the significance and impact the problems might have on completed design, and to implement meaningful corrective actions.

³¹ Ibid 10.

³² Ibid 29.

1.3.3 Conclusions

Based on the reviews described above, the inspectors concluded the Contractor had adequately evaluated the concerns identified in an ORP letter dated October 4, 2002.³³ The Contractor proposed appropriate corrective actions and was implementing them in support of the full CA.

1.4 Adequacy of the Contractor's Design Drawings Issued for Construction (ITP I-135)

1.4.1 Inspection Scope

The AB Safety Requirements Document (SRD) provided requirements regarding the performance of ITS activities in accordance with approved procedures, drawings, and instructions. Specifically, the SRD, Volume 2, Safety Criteria 4-1.2 and 7-3.5, and the QAM, Policy Q-05, provide requirements to perform work in accordance with established technical standards and approved instructions, procedures, and drawings.

The inspectors examined several of the Contractor's drawings for installing structural steel in the HLW and LAW buildings to determine whether the drawings had been reviewed, approved, and issued for construction as required by the Contractor's QAM.

1.4.2 Observations and Assessments

The inspectors examined 30 design drawings related to structural steel details, standard joint installation, platforms, and multi-commodity supports in the lower levels of the LAW building to determine whether they had been reviewed and approved in accordance with requirements established by the QAM. The inspectors concluded all had been reviewed, approved, and issued for construction in accordance with the requirements of the Contractor's QAM. The inspectors discussed the status of the design with the responsible LAW civil/structural engineer and found the ITS structural steel design was about 15% complete for the LAW building and a lesser percentage for the HLW and Pretreatment buildings.

1.4.3 Conclusions

The inspectors concluded the Contractor had reviewed, approved, and issued the design drawings issued for construction in accordance with QAM requirements. The inspectors found structural steel design was in the early phase and only minimally completed.

1.5 Adequacy of QA and QC Programs Applied to Structural Steel Installation

1.5.1 Inspection Scope

³³ Ibid 9.

The SRD, Volume II, Safety Criteria 7.3-1 and 7.3-7, and 24590-WTP-QAM-01-001, *QA Manual*, (QAM) Policy Q-10.1, *Inspections*, Policy Q-18.1, *Independent Assessment (Audit)*, and Policy Q-18.2, *Quality Assurance Surveillance*, required the performance of inspections, surveillances, and audits in accordance with American Society of Mechanical Engineers (ASME) NQA-1-1989, *Quality Assurance Requirements for Nuclear Facilities*.

The inspectors assessed the readiness of the Contractor's QA and QC programs to verify program attributes necessary to accomplish structural steel activities were in place and functioning in accordance with the QAM requirements. The inspectors interviewed Contractor QA, QC, and Field Engineering personnel and reviewed QA and QC procedures to verify Contractor implementation of ASME NQA-1-1989, QA and QC requirements.

1.5.2 Observations and Assessments

ORP inspection reports IR-02-003³⁴ and IR-02-010³⁵ documented the results of previous inspections of the implementation of the Contractors QC and QA programs. The inspectors determined the Contractor's implementation of the programs met the QAM requirements and the *Quality Assurance Requirements for Nuclear Facilities* standards.

The inspectors interviewed Contractor QA and QC management and staff to determine the Contractor's plans for implementation of the QA and QC programs during structural steel erection. From these discussions, the inspectors determined the following:

- BNI would continue to implement established QA audit and surveillance program and procedures and no significant QA staffing or program changes were planned for upcoming structural steel erection activities.
- BNI would continue to implement established QC program and procedures.
- Field Engineering was preparing procedure 24590-WTP-GPP-CON-3206, *Structural Steel Installation and On-Site Fabrication*, which would contain the QC inspection requirements specific to the erection of structural steel.
- No significant QC staffing or program changes were planned for upcoming structural steel erection activities.

The inspectors discussed the structural steel erection schedule relative to the planned structural steel installation procedure with the Contractor's QC Manager and the Assistant Field Engineering Manager and learned the first significant site structural steel erection activities were scheduled for December 17, 2002, in the LAW building. The Contractor planned to issue the procedure for structural steel installation and on-site fabrication by November 30, 2002. Craft,

³⁴ ORP letter from R. C. Barr to R. F. Naventi, BNI, "Inspection Report IR-02-003 – Quality Control, Control of Special Processes, and Control of Measuring and Test Equipment Assessment," 02-ORP-0147, dated April 11, 2002.

³⁵ ORP letter from R. C. Schepens to R. F. Naventi, BNI, "Quality Assurance (QA) Assessment Inspection Report, IR-02-010," 02-ORP-0363, dated September 19, 2002.

field engineering, and QC personnel would be trained to the structural steel erection procedure and a dry run performed upon issuance of the procedure. The inspectors determined the Contractor had plans established for QA and QC staffing levels, procedures, and implementation of structural steel erection.

1.5.3 Conclusions

Although the Contractor had not completed the preparations for structural steel erection, the inspectors concluded the Contractor had plans established for implementation of the QA and QC programs for structural steel erection activities in accordance with the AB. The Contractor planned no significant QA or QC staffing or program changes for the erection of structural steel and planned to issue a procedure for structural steel installation and on-site fabrication, including QC inspection requirements, approximately two weeks prior to initiation of site structural steel erection activities.

1.6 Adequacy of Consumable Material to Support Structural Steel Construction

1.6.1 Inspection Scope

The SRD, Volume II, Safety Criteria 7.3-1 and 7.3-11 provide requirements regarding procurement of items and services and the evaluation and selection of suppliers. The Safety Criteria further provide the standard ASME NQA-1-1989, *Quality Assurance Program Requirements for Nuclear Facilities*, and the QAM as the implementing standards.

The inspectors assessed implementation of the Contractor's procurement program to verify the Contractor had defined, procured, received (or had plans for receiving), and stored the material necessary to support planned structural steel erection activities for conformance with QAM Policy Q-07.1, *Control of Purchased Items and Services*, requirements. The inspectors interviewed Contractor design engineering, field engineering, procurement, QA, and QC personnel, and reviewed procurement records to verify Contractor implementation of QAM requirements for procurement of structural steel and associated consumable material.

1.6.2 Observations and Assessments

ORP inspection report IR-02-009³⁶ documented the results of a previous inspection of the implementation of the Contractor's procurement program. The inspection found the Contractor's procurement program complied with the requirements of the QAM and was effective in procuring ITS equipment and services.

The inspectors interviewed Contractor design engineering, field engineering, and procurement personnel to assess the adequacy of procurement activities performed for structural steel. The

³⁶ ORP letter from R. C. Barr to R. F. Naventi, BNI, "Procurement Program Inspection Report, IR-02-009," 02-ORP-0325, dated July 15, 2002.

inspectors were informed that the following documents had been issued for the purchase of structural steel.

24590-WTP-3PS-SS01-T0002, *Engineering Specification for Purchase of Structural Steel*, Revision 1, dated March 8, 2002

24590-WTP-3PS-SS01-T0001, *Engineering Specification for Purchase of Miscellaneous Steel*, Revision 0, dated November 20, 2001

24590-WTP-3PS-SS25-T0001, *Engineering Specification for Purchase of Steel Deck*, Revision 0, dated March 8, 2002

24590-QL-MRA-SS01-00002, *Material Requisition for Structural Steel*, Revision 2

24590-QL-MRB-SS01-00002, *Material Requisition for Structural Steel*, Revision 0

The procurement department buyer for the material requisitions (MRs) informed the inspectors that the purchase orders were in the management approval process and would include the requirements of the engineering specifications and MRs. The buyer further stated that a “Letter of Award” had been issued to two vendors selected for the MRs to allow the vendors to initiate necessary preparations for the purchase orders. The inspectors reviewed the three Engineering Specifications and two MRs and determined that technical and quality requirements were specified in accordance with the QAM.

The inspectors interviewed Contractor QA and supplier quality personnel to assess structural steel vendor quality verification activities. The inspectors were informed of the following:

- One of the selected vendors has been placed on the Contractor’s approved suppliers list based on a review and acceptance of the vendor’s QA program and satisfactory completion of a full scope audit of the vendor’s facilities.
- The other selected vendor has been placed on the Contractor’s conditionally approved suppliers list based on a review and acceptance of the vendor’s QA program. The Contractor identified deficiencies during a QA survey assessment of the vendor’s facilities and the vendor was still resolving the deficiencies.
- Vendor surveillance inspection plans were included in the MRs to specify the source inspections the Contractor would perform.
- Initial supplier quality vendor facility visits, to discuss implementation of the plans, were in progress at the time of this inspection.

The inspectors reviewed the supplier quality surveillance inspection plans included in the MRs and determined measures were established to interface with the suppliers and to verify suppliers’ performance. The measures included establishing an understanding between the purchaser and suppliers of the requirements and specifications identified in the procurement documents; planning techniques and processes to be used in fulfilling procurement document requirements;

supplier documents that were to be prepared or processed during work performance to fulfill procurement document requirements; identifying and processing necessary change information; establishing the method to be used to document information exchanges between purchaser and supplier; and establishing the extent of source surveillance and inspection.

The inspectors reviewed the approved suppliers list and the following Contractor QA documents:

QA Memorandum CCN 032167, *Quality Assurance Program Review of Hirshfeld Steel Company, Inc.*, dated April 18, 2002.

Bechtel National Inc. letter CCN 035555, *Contract No. DE-AC27-01-RV-14136 – Quality Assurance Program Review for Hirschfeld Steel*, dated June 28, 2002.

Bechtel National Inc. letter CCN 036310, *Contract No. DE-AC27-01-RV-14136 – Bechtel National Inc. Audit of Hirschfeld Steel Company – 24590-WTP-QA-02-011, Revision 0*, dated June 28, 2002.

QA Memorandum CCN 031173, *Quality Assurance Program Review for Paxton and Vierling*, dated April 3, 2002.

QA Memorandum CCN 032540, *Quality Assurance Program Review for Paxton and Vierling*, dated April 29, 2002.

Bechtel National Inc. letter CCN 032870, *Contract No. DE-AC27-01-RV-14136 – Bechtel National Inc. Survey of Paxton & Vierling Steel Co., 24590-WTP-SSV-QA-02-030, Revision 0*, dated May 14, 2002.

The inspectors determined the Contractor evaluated supplier QA programs before contract placement, any deficiencies that would affect quality were required to be corrected, and supplier QA programs were required to be accepted by the Contractor before starting work. One of the structural steel suppliers' QA program was accepted.

The inspectors interviewed field engineering and procurement personnel to determine the adequacy of procurement activities performed for consumable material associated with structural steel erection. The inspectors were informed the Contractor issued 24590-WTP-3PS-SS00-T0001, *Engineering Specification for Welding Structural Carbon Steel*, Revision 2, dated June 26, 2002; a structural steel execution plan; and numerous field material requisitions and blanket purchase orders for weld filler metal, and miscellaneous tools and equipment for structural steel equipment. The Contractor maintained a "Master Equipment Register" that listed purchased and rented equipment such as welders, cranes, and tractor trailers. The inspectors reviewed the *Engineering Specification for Welding Structural Carbon Steel*, three field material requisitions, and the "Master Equipment Register." The inspectors determined that the Contractor procured consumable materials in accordance with QAM requirements.

The inspectors interviewed field engineering and QC personnel and confirmed structural steel and associated consumable material would be received, inspected, stored, and handled in accordance with procedure 24590-WTP-GPP-GCB-00100, *Field Materials Management*,

Revision 1, effective date May 31, 2002. The inspectors determined the Contractor had adequate plans to receive, inspect, store, and handle structural steel and associated consumable material in accordance with the QAM.

1.6.3 Conclusions

The inspectors concluded the Contractor had established appropriate plans and initiated procurement of structural steel and consumable materials in accordance with the AB. The Contractor had selected vendors, initiated purchase orders, and planned for receiving, storage, and issue of structural steel and associated consumable materials in accordance with the QAM requirements.

1.7 Adequacy of Structural Steel Construction Implementing Procedures

1.7.1 Inspection Scope

The SRD, Volume 2, Safety Criterion 4.1-2, requires that structural steel for ITS structures, systems, and components be designed, fabricated, erected, constructed, tested, inspected, and maintained in accordance with implementing codes American Institute of Steel Construction (AISC) MO16-89, *Manual for Steel Construction-Allowable Stress Design, Ninth Edition*, and American National Standards Institute (ANSI)/AISC N690, *Specification for the design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities*, 1994 Edition. The inspectors examined the Contractors technical specifications and procedures governing the fabrication, erection, construction, inspection, and testing of ITS steel structures to ascertain whether they implemented the requirements of the SRD.

1.7.2 Observations and Assessments

The inspectors examined 24590-WTP-3PS-SS02-T0001, *Engineering Specification for Erection of Structural Steel*, Revision 0, dated September 20, 2002, to ascertain whether the specification conformed to the requirements of the SRD required standards. The inspectors concluded the specification implemented the requirements of the standards specified in the SRD.

The inspectors determined the Contractor had not yet established approved procedures to effect the erection of ITS structural steel and planned to complete the procedures for erection of structural steel by November 30, 2002.

1.7.3 Conclusions

The inspectors concluded that the Contractor had prepared engineering specification for structural steel which met the requirements of the AB. The Contractor had not established approved procedures to affect the installation of ITS structural steel.

1.8 Adequacy of Training and Qualification of Personnel Engaged in Structural Steel Installation Activities

1.8.1 Inspection Scope

The SRD, Volume II, Safety Criteria 7.3-1 and 7.3-3, required that personnel be trained and qualified to ensure they are capable of performing their assigned work in accordance with 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*, Section 3.15, *Training and Qualifications*, and QAM Policy Q-02.2, "Personnel Training and Qualification."

The inspectors assessed implementation of the Contractor's Training program to verify Contractor staff were qualified and trained for their assigned structural steel erection activities in accordance with QAM requirements. The inspectors interviewed the Construction Training Manager, QA, QC, and field engineering personnel, and reviewed the construction training procedure to verify compliance with QAM training requirements.

1.8.2 Observations and Assessments

The ORP inspection report IR-02-006³⁷ documented the results of a previous inspection of the implementation of the Contractors training program. The inspection determined the Contractor's implementation of the training program complied with the QAM and was effective in providing appropriately qualified and certified staff to accomplish the ITS work described in the AB.

The inspectors reviewed 24590-WTP-GPP-CON-1301, *Construction Training*, Revision 0, effective date October 1, 2001, and interviewed the Construction Training Manager, QA, QC, and field engineering personnel to assess Contractor staff qualifications and training for their assigned structural steel erection activities. The inspectors determined the following:

- The *Construction Training* procedure and personnel training profiles would continue to be utilized for structural steel erection training and qualifications.
- Training for the planned *Structural Steel Installation and On-Site Fabrication* procedure, and a procedure dry run, would be added to the training profiles of applicable Contractor personnel.
- Satisfactory completion of the training would be required prior to performing structural steel erection activities.
- At the time of the inspection, the *Structural Steel Installation and On-Site Fabrication* procedure had not yet been issued and training of personnel to the procedure had not yet commenced.

³⁷ ORP letter from R. C. Barr to R. F. Naventi, BNI, "Personnel Training and Qualification Inspection Report, IR-02-006," 02-ORP-0248, dated June 14, 2002.

- QC inspectors would continue to be certified using existing procedure 24590-WTP-GPP-CON-7106, *Quality Control Personnel Certification*, Revision 0, effective date September 14, 2001.

The inspectors determined training and certification of Contractor personnel for structural steel erection was planned to meet the QAM Personnel Training and Qualification Policy.

1.8.3 Conclusions

The inspectors concluded that the Contractor had appropriate plans for the training and qualification of personnel for structural steel erection activities in accordance with the AB. The Contractor planned to use trained and qualified construction personnel for the erection of structural steel and planned to train existing personnel, and perform a dry run, on the requirements of a planned structural steel installation and on-site fabrication procedure prior to initiation of site structural steel erection activities.

1.9 Adequacy of Structural Steel Welding Programs, Procedures, and Qualifications

1.9.1 Inspection Scope

The SRD, Volume II, Safety Criteria 4.1-2, requires structures, systems, and components designated as ITS shall be designed, fabricate, erected, constructed, tested, inspected, and maintained to quality standard ANSI/AISC-N690-94 *Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities*. ANSI/AISC-N690-94, Section Q1.17, "Welds" states "All provision of the *Structural Welding Code—Steel*, AWS D1.1, except paragraph 2.3.2.4, 2.5, 8.13.2, 8.15.1.5, and Section 9 apply to work performed under this Specification."

1.9.2 Observations and Assessments

The inspectors examined the Contractor's welding program to assess whether the Contractor was ready to perform welding on ITS steel structures. The inspectors found the Contractor had not released structural steel design drawings for construction and had not established structural steel work packages. Accordingly, welding requirements had not been identified. The Contractor had established welding procedures conforming to American Welding Society (AWS) D1.1, procedures specifying welding filler metal controls, and qualified welders to AWS D1.1 requirements. However, the inspectors could not verify the acceptability of the structural steel welding program until the Contractor provided structural steel design issued for construction to the field.

1.9.3 Conclusions

The inspectors concluded that until the structural steel design was released to the field with the welding requirements, the structural steel welding program could not be verified.

1.10 Adequacy of Closure of Inspection Items (IAP A-105 and A-106)

Background

During a previous inspection of Configuration Management (CM), reported in inspection report IR-02-007³⁸, two Findings were identified. The Contractor provided an initial response to the Findings in a letter dated August 29, 2002.³⁹ The ORP reviewed the Contractor's response and found it to be inadequate. A detailed analysis of the Contractor's response, and ORP's rejection, was sent to the Contractor on September 24, 2002⁴⁰. Subsequent to the rejection letter, the two CM Findings were combined with 10 other Findings to form the basis of the October 4, 2002 letter⁴¹ to the Contractor. The Contractor provided a revised response to CM in a letter⁴² dated October 30, 2002. As part of the Construction Authorization Request Readiness Inspection, the inspectors reviewed the implementation of the CM commitments made in Attachment 2 and 3 of the October 30, 2002 letter⁴³. The two Findings could not be fully closed at the time of this inspection since several commitments were not completed.

1.10.1 (Open IR-02-007-02 FIN) Failure of PDC to utilize formal approved procedures for processing quality related material into the CM database. Attachment 3 of the October 30, 2002 response letter⁴⁴, provided a number of commitments intended to address this Finding. The following is a listing of the commitments and an evaluation of the current status of each commitment:

- Response to Finding IR-02-007-02-FIN, Attachment 3, item 4, committed the Contractor to review and revise six specifically named procedures to explicitly identify the appropriate electronic linkages between specific design documents and their references for CM purposes by November 5, 2002. From interviews with the Process Engineering Manager, the inspectors determined the definition of the linkages had been supplied to PDC by Engineering, but the procedures had not yet been revised. This item is considered open.
- Response to Finding IR-02-007-02-FIN, Attachment 3, item 9, part 1, committed PDC and QC to conduct weekly field audits of 100% of jobsite craft and technical configuration document and change control document libraries and to continue this effort for six months. The inspectors determined preliminary field data had been collected

³⁸ Ibid 27.

³⁹ BNI letter from R. F. Naventi to R. J. Schepens, ORP, "Bechtel National, Inc.'s Response to Inspection Report IR-02-007 – Configuration Management Inspection," CCN 038148, dated August 29, 2002.

⁴⁰ ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Response to Findings of Configuration Management Inspection Report IR-02-007," 02-ORP-0466, dated September 24, 2002.

⁴¹ Ibid 9.

⁴² Ibid 10.

⁴³ Ibid 10.

⁴⁴ Ibid 10.

using these weekly field audits. This item is considered open.

- Response to Finding IR-02-007-02-FIN, Attachment 3, item 9, part 2, committed PDC to develop a data entry and data integrity quality control program. The first audit of data entries was scheduled for October 14, 2002, and to continue on a weekly basis thereafter. The inspectors determined a program was in development with desk instruction and draft sampling protocols. An initial set of rough audit field data from the first audit was being analyzed. This item is considered open.
- Response to Finding IR-02-007-02-FIN, Attachment 3, item 9, part 3, committed PDC to develop CM quality metrics for short-term and long-term monitoring and process improvements. The inspectors reviewed a desk instruction titled "Records Quality Control," dated November 5, 2002, which was used to generate QC data in four areas associated with PDC files and records. However, from an interview with the PDC Manager, the inspectors learned the metrics were still under development, in that failure criteria used to determine if a condition adverse to quality existed was not yet generated. This item is considered open.
- Response to Finding IR-02-007-02-FIN, Attachment 3, item 9, part 4, committed PDC by November 8, 2002, to review and revise PDC procedures for inclusion of the use of document data entry processing and compliance checklists as appropriate. Through an interview with the PDC Manager, the inspectors determined no procedure changes had been made and a PDC review indicated no procedure was required for this effort.

However, in subsequent interviews the PDC Manager and the Process Engineering Manager, the PDC Manager did commit to developing a PDC procedure, which would provide quality control of PDC data entry of CM related information. This item is considered open.

- Response to Finding IR-02-007-02-FIN, Attachment 3, item 9, part 5 committed the Contractor to conduct management facilitated training sessions to reaffirm to all PDC staff that Safety and Quality are higher priorities than Cost and Schedule, to provide lessons learned, and to review Corrective Action Report dispositions. These meetings were to be completed by the end of November. The inspectors determined this training effort had not yet started. This item is considered open.
- Response to Finding IR-02-007-02-FIN, Attachment 3, item 10, part 1, 2, and 3 committed PDC and QC to conduct weekly audits of site construction drawings for at least 6 months. Monitoring and monthly feedback of the PDC quality improvement program would continue and bi-monthly PDC management assessments of Engineering drawings and design input would occur through May 2003. The focus of the surveillance monitoring was to detect, record, report, and correct any status accounting and/or filing errors at the jobsite craft and technical libraries. The inspectors determined QC had performed four surveillances (24590-WTP-SV-QC-02-128, 129, 132, and 136) between October 1-14, 2002, and QA had performed two surveillances (24590-WTP-SV-QA-02-585 and 590) between October 20-21, 2002, for the purposes of closure of Corrective Action Reports 24590-WTP-CAR-QA-02-160, 200, and 221. The results of these

surveillances indicated problems continued to be identified. Surveillance 24590-WTP-SV-QA-02-590 was issued to document committed long-term corrective actions involving organizational changes, management assessments to be performed, and reports to be generated from ALTRIS. PDC management assessments had been performed but the reports were not yet issued. This item is considered open.

1.10.2 (Open IR-02-007-03a, b, and c-FIN) (a) Failure to incorporate an FCR into a revised drawing or delete or supercede the FCR, (b) Failure to document drawing changes via a DCN, DCA, or in the revision block of the drawing, and (c) Failure to record required design inputs on a DIM. The inspectors reviewed the status of commitments made associated with these Findings in the October 30, 2002, response letter⁴⁵. The following is a listing of the commitments and an evaluation of the current status of each commitment:

- To resolve the original issue in Findings IR-02-007-03a-FIN and IR-02-007-03b-FIN, Attachment 3, item 3, committed the Contractor to re-issue Design Change Note 24590-BOF-DCN-E-02-003 to address the changes made to drawing 24590-BOF-E2-E54T-00001, Rev. 2. The inspector verified this action had been completed. This item is considered closed.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, item 3, committed the Contractor to revise the DIM for drawing 24590-BOF-E2-E54T-0001, to include reference to the civil and electrical drawings 24590-BOF-P1-50-0001, "Site Plot Plan", and 24590-BOF-E1-MVE-0001, "Man Single Line Diagram." The inspectors verified this action had been completed. This item is considered closed.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, item 8, part 1, committed to the Contractor to a 100% review of all Field Change Requests (FCRs) to date for the Electrical Discipline. The inspectors interviewed the Deputy Manager of Engineering, who stated this was completed with no problems being found. This item is considered open pending documentation of this review.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, item 8, part 2, committed the Contractor to review a representative sample of FCRs to date for the Civil, Structural & Architectural Discipline to include any additional change documents issued by the end of October 2002 and changes incorporated by end of November 2002. The inspectors determined this effort was in progress but had not been completed. This item is considered open both due to its incomplete status of committed activities, and due to the lack of adequate response. The review of the FCRs needed to cover all drawing disciplines or explain the justification for why some disciplines were not applicable.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, Item 8, part 3, committed the Contractor to conduct a two-hour Quality stand down meeting of all Engineering Managers and Supervisors to be held of September 16, 2002. The inspectors determined this stand down had taken place, with attendance documented. This item is considered closed.

⁴⁵ Ibid 10.

- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, Item 8, part 4, committed the Contractor to conduct management facilitated training sessions to reaffirm to all Engineering Discipline staff that Safety and Quality are higher priorities than Cost and Schedule, to provided lessons learned, and to review related CAR dispositions. The inspectors determined meetings had taken place and were continuing; however per discussions with the Process Engineering Manager, the lessons learned were not yet incorporated. This item is considered open.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, Item 9, part 1, committed the Contractor through May 2003 to conduct bimonthly discipline management assessments of drawings and design input and change control documents processes to assure procedural compliance and accurate data entry. The inspectors did not review this since the evaluation will not be completed until May 2003. This item is considered open.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, Item 9, part 2, committed the Contractor by the end of November to a review all FCR/FCN/SDDR/NCRs for adequacy. This item was not available for review and is considered open.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, Item 9, part 3, committed the Process Assurance group, by October 30, 2002, to review lessons learned from earlier PDC attention to detail solutions. The inspectors interviewed both the Process Assurance and the Process Engineering Managers and determined this review had been performed, but the results were not yet part of the management-facilitated training committed in Attachment 3, Item 8, part 4, described below. This is considered open.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, Item 9, part 4, committed the Contractor to issue DIM/SDDR/NCR/FCR checklists as a minimum acceptable content guidance by the end of November. This was not available for review at the time and is considered open.
- Response to IR-02-007-03-FIN (a, b, and c), Attachment 3, Item 9, part 5, committed the CM group to review and report on a sample of CM enabling change control documents monthly for a period of six months after which the frequency will be reexamined. The first review was to be complete by November 27, 2002. This was not available for review and is considered open.

2.0 EXIT MEETING SUMMARY

The inspectors presented preliminary inspection results to members of Contractor management at an exit meeting on October 10, 2002. The Contractor acknowledged the observations and conclusions. The inspectors asked the Contractor whether any materials examined during the inspection should be considered limited rights data. The Contractor stated no limited rights data were examined during the inspection.

The Contractor was informed that a final exit meeting would take place following verification of corrective actions for the engineering performance identified in ORP letter dated October 4,

2002.⁴⁶ Following a detailed inspection to verify immediate actions were taken to address the engineering performance issues, the final exit meeting was held on November 7, 2002.

3.0 REPORT BACKGROUND INFORMATION

3.1 Partial List of Persons Contacted

K. Auclair, Systems Engineering Manager
 T. Childers, QC Engineer
 D. Cook, Civil, MFAT Procurement Lead
 F. Davis, Deputy Engineering Manager
 B. Dunn, Field Welding Engineer
 M. Ehlinger, QA Surveillance Manager
 M. Ensminger, QC Manager
 T. Foote, Process Assurance Supervisor
 D. Foss, ES&H Engineer
 H. Haas, Engineering Procurement Expeditor
 G. Hagen, Manager, Project Administration Document Control
 D. Hammond, Infrastructure Process Specialist
 C. Herbert, Construction Training Manager
 M. Hill, Field Procurement Manager
 T. Howard, Civil Field Engineer
 J. Hummer, Manager, Configuration Management
 A. Johnson, Lead Field Welding Engineer
 W. Klinger, QA Assessment Manager
 A. Lesko, Infrastructure Process Supervisor
 D. Neal, QA Engineer
 A. Palmquist, LAW Civil/Structural Supervisor
 T. Paredes, Field Purchasing Manager
 W. Perry, Supplier Quality (Inspection) Manager
 W. Riemel, Quality Engineer for QA
 J. Roth, Process Engineering Manager
 D. Scribner, C/S/A Discipline Manager
 G. Shell, QA Manager
 G. Warner, Quality Engineering Supervisor
 M. Weaver, Civil Field Engineer
 S. Wright, Assistant Field Engineering Manager

3.2 List of Inspection Procedures and Documents Used

Inspection Administrative Procedure A-105, "Inspection Performance"

Inspection Administrative Procedure A-106, "Verification of Corrective Actions"

⁴⁶ Ibid 9.

Inspection Technical Procedure I-106, "Personnel Training and Qualification Assessment"

Inspection Technical Procedure I-114, "Structural Steel Inspection"

Inspection Technical Procedure I-115, "Structural Steel Welding Inspection"

Inspection Technical Procedure I-120, "Nondestructive Testing Inspection Procedure"

Inspection Technical Procedure I-130, "Procurement Program Inspection"

Inspection Technical Procedure I-131, "Document Control and Records Management Program Inspection"

Inspection Technical Procedure I-135, "Readiness for Construction Inspection"

Procedures

24590-WTP-GPG-MGT-001, Revision 0, *Safety/Quality Council*, dated April 4, 2002

PDC Desk Instruction, *Records Quality Control*, dated November 5, 2002

QA/QC Surveillances and Corrective Action Reports

24590-WTP-CAR-QA-02-137, *Discrepancies between FCR's and Design Documents*, dated July 10, 2002

24590-WTP-CAR-QA-02-160, *Loss of Configuration Control*, dated July 26, 2002

24590-WTP-CAR-QA-02-161, *Project document/records control procedures not implementing QAM requirements*, dated July 31, 2002

24590-WTP-CAR-QA-02-200 *Design Change Notice not indicated as a Change Request on Drawing*, dated August 29, 2002

24590-WTP-RITS-QAIS-02-149, dated October 24, 2002

24590-WTP-RITS-QAIS-02-157, dated October 30, 2002

24590-WTP-RITS-QAIS-02-158, dated October 31, 2002

24590-WTP-RITS-QAIS-02-159, dated November 5, 2002

24590-WTP-RITS-QAIS-02-160, dated November 5, 2002

24590-WTP-SV-QA-02-585, Rev. 0, dated October 21, 2002

24590-WTP-SV-QA-02-590, Rev. 0, dated October 22, 2002

24590-WTP-SV-QC-02-128, Rev. 0, dated October 1, 2002

24590-WTP-SV-QC-02-129, Rev. 0, dated October 2, 2002

24590-WTP-SV-QC-02-132, Rev. 0, dated October 10, 2002

24590-WTP-SV-QC-02-136, Rev. 0, dated October 14, 2002

Other Documents

Quality Action List dated November 4, 2002

3.3 List of Items Opened, Closed, and Discussed

Opened

A-03-ORP-RPPWTP-002-A01	Assessment Follow-up Item	Process Assessment group to develop procedures to address the use of calculation metrics and perform assessments.
A-03-ORP-RPPWTP-002-A02	Assessment Follow-up Item	Contractor to completed actions to develop a method for tracking users of calculations and to notify users when changes occur.
A-03-ORP-RPPWTP-002-A03	Assessment Follow-up Item	The Contractor to schedule the reviews of calculations reverted to committed status to ensure timely reviews.

Discussed

IR-02-007-02-FIN	Finding	Failure of PDC to utilize formal approved procedures for processing quality related material into the CM database.
IR-02-007-03a-FIN	Finding	Failure to incorporate an FCR into a revised drawing or delete or supercede the FCR.
IR-02-007-03b-FIN	Finding	Failure to document drawing changes via a DCN, DCA, or in the revision block of the drawing.
IR-02-007-03c-FIN	Finding	Failure to record required design inputs on a DIM.

Closed

None

3.4 List of Acronyms

AB	authorization basis
AFI	Assessment Follow-up Item
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
BOF	Balance of Facilities
BNI	Bechtel National, Inc.
CA	construction authorization
CAR	Corrective Action Report
DIM	Design Input Memoranda
DOE	U.S. Department of Energy
ES&H	Environmental, Safety, and Health
FCR	field change request
HLW	High Level Waste
IAP	Inspecting Administrative Procedure
IR	Inspection Report
ISMP	Integrated Safety Management Plan
ITS	important-to-safety
LAW	Low Activity Waste
MR	material requisitions
ORP	Office of River Protection
ORP	WTP Safety Regulation Division
PCAR	Partial Construction Authorization Request
PDC	Project Document Control
PSAR	Preliminary Safety Analysis Report
PT	Pretreatment
QA	quality assurance
QAM	Quality Assurance Manual
QC	quality control
RCA	root cause analysis
SDDR	Supplier Deviation Disposition Requests
SER	Safety Evaluation Report
SRD	Safety Requirements Document
WTP	Waste Treatment and Immobilization Plant